

This paper provides a brief description of *Asplenium bullatum* Wall. ex Mett. along with other relevant information. The field number along with collector's name is given in brackets and the voucher specimens are deposited in the Herbarium, Botany Department, D. S. B. College, Kumaun University, Naini Tal.

Asplenium bullatum Wall. ex Mett., Aspl. 51. 1859; Dixit, Census Indian Pterid. 116. 1984. *A. bulbiferum* auct. Clarke, Trans. Linn. Soc. Lond. 2. Bot. 1: 485. 1880; Bedd., Handb. Ferns Brit. India 159. 1883.

Rhizome stout, thick. Stipe 15-35 cm long, stout, erect, slender, scaly near the base. Fronds 30-120 cm long, oblong-lanceolate or ovate-lanceolate, 2-3 pinnate. Pinnae in many pairs, horizontal, cut down to the compressed winged rachis, into many lanceolate-deltoid pinnules which are cut down into slightly

toothed linear, oblong, flaccid segments, texture herbaceous. Veins pinnate, firm. Sori oblong, large, often filling the whole segment and visible from the upper surface. Spores light reddish-brown, densely granulose.

Habitat: Rare fern which grows in dark shaded, humus rich forest floors in ravines around 1300 m.

Specimens examined: Kumaun Himalaya: Pithoragarh district, Banlekh around 1300 m (YPSP 900).

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DEPARTMENT OF BOTANY,
D. S. B. COLLEGE,
KUMAUN UNIVERSITY,
NAINI TAL - 263 002 (U.P.),
April 3, 1987.

Y. P. S. PANGTEY
S. S. SAMANT

40. POLLEN MORPHOLOGICAL VARIATIONS AMONG THREE TAXA OF RUTACEAE

INTRODUCTION

The pollen morphology of three taxa of Rutaceae has been studied. In Rutaceae, the sporomorphs are colpiate, but the apertures range from 3-8 and hence it is a less multipalynous family (Nair 1970). The pollen grains are isopolar, radiosymmetric, diaperturate to polyaperturate and suboblate to prolate (cf. Erdtman 1952).

MATERIAL AND METHODS

The material for the present investigation was collected from Narthamalai, Tambaram,

and Chidambaram (Table 1).

The grain characteristics were worked out from mature pollen grains tapped from open

TABLE 1

Sl. No.	Taxa	Location	Voucher No.
1.	<i>Clausena willdenovi</i> W. & A.	Narthamalai	28
2.	<i>Glycosmis cochinchinensis</i> Pierre	Tambaram	20
3.	<i>Limonia acidissima</i> Linn.	Chidambaram	19

flowers. The pollen grains were dusted on a clean slide and stained with a drop of 1% acetocarmine. The size, shape, type and the wall-thickness were measured. The percentage of pollen fertility was also calculated.

OBSERVATIONS

The descriptions of pollen grains of the three taxa are as given below:

Clausena willdenovii W. & A. 3-zonocolporate, sub-prolate ($23.24 \times 18.42 \mu\text{m}$). Sexine thinner than the nexine, psilate. Germ pore lalongate.

Glycosmis cochinchinensis Pierre 3-zonocolporate, sub-prolate ($22.0 \times 18.0 \mu\text{m}$). Sexine as thick as nexine, faintly reticulate, germ pore lalongate.

Limonia acidissima Linn. 4-zonocolporate, prolate spheroidal ($22.80 \times 20.96 \mu\text{m}$). Sexine

based on size, the pollen grains of the three taxa have been grouped under small sized spores ($10\text{--}25 \mu\text{m}$).

DISCUSSION

The Palynological study of the three taxa reveals only colpate type of pollen grains. Reticulation with large brochi has been noted in *Limonia acidissima*. Faintly reticulate grains occur in *Glycosmis cochinchinensis* and those of *Clausena willdenovii* happen to be psilate. Sub-prolate type has been observed in *G. cochinchinensis* and *C. willdenovii*, whereas the prolate spheroidal type was found in *L. acidissima*. The maximum pollen fertility (86%) was observed in *C. willdenovii*.

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TABLE 2
POLLEN MORPHOLOGICAL FEATURES OF THE TAXA INVESTIGATED

Sl. No.	Taxa	Type	Shape	Length in μm	Breadth in μm	L/B ratio	Wall thickness	Fertility %
1.	<i>Clausena willdenovii</i>	Psilate	Sub-prolate	23.24 (0.544)	18.42 (0.203)	1.26	3.94 (0.320)	86
2.	<i>Glycosmis cochinchinensis</i>	Reticulate	Sub-prolate	22.00 (0.501)	18.06 (0.492)	1.22	3.43 (0.289)	78
3.	<i>Limonia acidissima</i>	Reticulate	Prolate spheroidal	22.80 (0.639)	20.96 (0.535)	1.09	3.68 (0.344)	82

Standard errors of mean values are furnished within brackets.

as thick as the nexine, coarsely reticulate with large brochi. Germ pore lalongate.

The details regarding the size, shape, type, L/S ratio and wall thickness are given in Table 2.

On the basis of Erdtman's (1945) system,

the facilities provided. I am indebted to Prof. R. Sampathkumar for his guidance and help in writing this paper. I am thankful to Dr. B. V. David, the Director, FIPPAT for encouragement and helpful criticism.

DEPARTMENT OF BOTANY,
ANNAMALAI UNIVERSITY,
ANNAMALAINAGAR - 608 002,
April 7, 1987.

B. PREMA GUNASEELI¹

¹ Present address: Fredrick Institute of Plant Protection and Toxicology, Padappai 601 301, Chingleput Dist., Tamil Nadu, India.

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41. *MERREMIA QUINQUEFOLIA* (LINN.) HALL. F.: A NEW RECORD FOR EASTERN INDIA

While exploring the flora of Dhenkanal district during the last three years, several interesting plants could be collected among which *Merremia quinquefolia* (Linn.) Hall. f. proves to be a new record for the state of Orissa. After perusal of available literature and survey of authentic specimens extant at different herbaria of India it has been concluded that this taxon is also a new record for Eastern India. It has restricted distribution and has so far been reported from Maharashtra (Naik 1979), Gujarat (Raghavan *et al.* 1981) and Rajasthan (Bhandari 1978). The specimen has been housed in the herbarium of P.G. Dept. of Botany, Utkal University, Bhubaneswar.

Merremia quinquefolia (Linn.) Hall. f. in Engler Bot. Jahrb. 16: 552. 1893; Ooststr. in Blumea 3: 324. 1939 *et in* Fl. Malesiana (ser. 1) 4: 446. 1953; Bhandari in Fl. Ind. Desert 263. 1978. *Ipomoea quinquefolia* Linn. Sp. Pl. 162. 1753. (CONVOLVULACEAE).

A twining herb. Stem glabrous to sparsely pubescent upwards. Leaves palmately compound; petiole upto 4 cm. long; leaflets 5, sessile or shortly petioluled, narrowly oblong or lanceolate, distantly shallowly serrate; cen-

tral leaflet larger, 6.5 × 2 cm; laterals smaller, 2-4 × 1-2 cm, attenuated at both ends. Inflorescence axillary, leaf-opposed, 3-5 flowered cyme. Peduncle upto 10 cm. long. Flowers pedicelled. Bracts narrow-triangular, acute. Calyx oblong, obtuse at apex, subequal. Corolla funnel-shaped, creamish-yellow, glabrous. Stamens 5, subequal, inserted above the base of corolla; filaments thinly pubescent at their dilated base. Ovary glabrous. Capsule globose, 4-celled. Seeds 4, greyish-black, with appressed curled hairs.

Fls. & Fr.: April-Sept.

Illus.: Bhandari, Fl. Ind. Desert 263. f. 97. 1978.

Specimen examined: FCI (Talcher), B.C. Patra, 11475. Not common.

Herbarium specimens examined: Nagpur, M. Phirashi 336/6.1 1960; 312868 (CNH).

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P. G. DEPT. OF BOTANY,
UTKAL UNIVERSITY,
BHUBANESWAR - 751 004,
April 15, 1987.

B. C. PATRA
B. P. CHAUDHURY